

Title (en)

METHOD AND APPARATUS FOR FORMING OPPOSING HOLES IN A SIDE WALL OF A TUBULAR WORKPIECE

Title (de)

VERFAHREN UND VORRICHTUNG ZUM FORMEN VON GEGENÜBERLIEGENDEN LÖCHERN IN EINER SEITENWAND EINES ROHRFÖRMIGEN WERKSTÜCKES

Title (fr)

PROCEDE ET APPAREIL PERMETTANT DE FORMER DES TROUS OPPOSES DANS UNE PAROI LATERALE D'UN ELEMENT A TRAVAILLER DE FORME TUBULAIRE

Publication

EP 1200211 B1 20030514 (EN)

Application

EP 00949032 A 20000726

Priority

- CA 0000871 W 20000726
- US 36199899 A 19990728

Abstract (en)

[origin: US6067830A] A method of cutting opposing holes in a side wall of a tubular workpiece and removing the cut out slugs, in which first and second axially aligned punches are applied to opposite side walls of a pressurized workpiece. The second punch has a larger width than the first punch, and reciprocates in a passageway extending laterally from the workpiece. The punches are reciprocated so that the first punch passes through both side walls, and first and second slugs are cut out. The end of the first punch is advanced toward the end of the second punch to capture the cut out slugs between the ends of the first and second punches, and the punches are moved so that the ends of the punches and the slugs captured between them progress along the passageway away from the workpiece. The ends of the punches are separated at a region of the passageway spaced from the workpiece, and the released slugs are removed from the ends of the punches.

IPC 1-7

B21D 28/28

IPC 8 full level

B21D 26/035 (2011.01); **B21D 28/28** (2006.01); **B21D 45/08** (2006.01)

CPC (source: EP US)

B21D 26/035 (2013.01 - EP US); **B21D 28/28** (2013.01 - EP US); **B21D 45/003** (2013.01 - EP US); **B26D 7/1854** (2013.01 - EP US); **B26F 1/40** (2013.01 - EP US); **B26D 7/1818** (2013.01 - EP US); **B26F 1/0015** (2013.01 - EP US); **Y10T 29/49805** (2015.01 - EP US); **Y10T 83/0591** (2015.04 - EP US)

Cited by

CN104368667A; WO2007009595A1

Designated contracting state (EPC)

AT BE CH CY DE DK ES FI FR GB GR IE IT LI LU MC NL PT SE

DOCDB simple family (publication)

US 6067830 A 20000530; AT E240171 T1 20030515; AU 6256800 A 20010219; BR 0012521 A 20020402; CA 2373998 A1 20010208; CA 2373998 C 20090127; DE 60002726 D1 20030618; DE 60002726 T2 20031009; EP 1200211 A1 20020502; EP 1200211 B1 20030514; ES 2198331 T3 20040201; JP 2003505252 A 20030212; JP 4643096 B2 20110302; WO 0108829 A1 20010208

DOCDB simple family (application)

US 36199899 A 19990728; AT 00949032 T 20000726; AU 6256800 A 20000726; BR 0012521 A 20000726; CA 0000871 W 20000726; CA 2373998 A 20000726; DE 60002726 T 20000726; EP 00949032 A 20000726; ES 00949032 T 20000726; JP 2001513539 A 20000726